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| 10/541,977 | 07/11/2005 | Petrus Helena Vromans | NL 030031 | 8093 |
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| EXAMINER | | | | |
| JOLLEY, KIRSTEN | | | | |
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| 1792 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/541,977

Applicant(s)

VROMANS ET AL.

Examiner

Kirsten C. Jolley

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 9-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. The objections to the specification and to the claims have been withdrawn in response to Applicant's amendments to the specification and claims.
2. The 35 USC 112, 2nd paragraph rejections have also been withdrawn in response to Applicant's amendments to the claims.
3. Applicant's arguments filed May 26, 2009 have been fully considered but they are not persuasive.

With respect to the rejections over the prior art of Ou-Yang, Applicant argues that Ou-Yang describes spreading of the liquid over the whole substrate and does not teach or suggest limiting the spread of the liquid "between an inner radius r_i and an outer radius r_o " as in claim 1. The Examiner disagrees. The substrate in Ou-Yang is disk-shaped and therefore necessarily has an inner radius r_i and an outer radius r_o . See Figures 1 and 2 which illustrate a disk-shaped substrate, and paragraph [0014] which specifically teaches that the disk substrate has a center hole. Since Ou-Yang teaches spreading over the surface of the entire disk substrate, the reference necessarily spread liquids between an inner radius r_i of the disk and an outer radius r_o of the disk.

Applicant also argues that paragraphs [0014]-[0015] and [0033]-[0034] of Ou-Yang only describe a single source of heated air directed to an outer region of an optical storage media during spin coating with resin. Applicant states that the descriptions of Ou-Yang do not rise to a level of teaching "heating the liquid layer by heating means in an area with a radius larger than

the inner radius r_i in such a way that the temperature rise of the liquid layer at r_i has a value δT_{ri} ” and “wherein while the temperature rise of the liquid layer between r_i and r_o gradually increases, the temperature rise of the liquid layer at r_o has a value $\delta T_{ro} > \delta T_{ri}$.” First, it is noted that Ou-Yang teaches the use of multiple sources of heat (paragraph [0018]). Secondly, it is noted that the radiation 5 in Figure 1 of Ou-Yang points at a location along the radius that is outside of the inner radius (i.e., larger than the inner radius), between the inner radius and outer radius. Similarly, Figure 2 illustrates that the radiation 10 also points to plural locations along the radius outside of the inner radius. Further, Ou-Yang teaches in paragraphs [0016] and [0018] that hot gas or IR lamps may be directed onto several areas of the substrate; such would necessarily include locations at an area between the inner radius and outer radius because the area between the inner radius and outer radius encompasses the entire disk substrate surface. It is additionally noted that the Ou-Yang reference is directed to the creation of a heat *gradient* along the radius of disk substrate, which results in the gradually increasing temperature rise of the liquid layer between r_i and r_o as claimed.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Ou-Yang (US 2004/0137751).

The Examiner notes that the filing date of Ou-Yang (December 2, 2003) is later than Applicant's PCT filing date (November 4, 2003) and foreign priority date (January 14, 2003). However, the filing date of Ou-Yang's Provisional application No. 60/431,346 of December 2, 2002 precedes both of Applicant's PCT filing date and foreign priority date. The Examiner has reviewed the Provisional application No. 60/431,346, and notes that the Provisional application provides support for its invention and the limitations relied upon for rejection of the claims as set forth below.

Ou-Yang discloses a method of manufacturing an optical data storage medium comprising: applying a liquid onto a rotating substrate and rotating the substrate further to spread out the liquid between an inner radius r_i and an outer radius r_o (paragraph [0028]) and solidifying the liquid by means of exposure to UV radiation. Ou-Yang teaches that after applying the liquid onto the rotating substrate, the liquid layer is heated using a temperature gradient where the temperature at the outer radius has a temperature higher than at the inner radius (paragraphs [0014-0015] and [0033-0034]).

With respect to the newly added limitation requiring "heating the liquid layer by heating means in an area with a radius larger than the inner radius r_i ," it is noted that the radiation 5 in Figure 1 of Ou-Yang points at a location along the radius that is outside of the inner radius (i.e., larger than the inner radius), between the inner radius and outer radius. Similarly, Figure 2 illustrates that the radiation 10 also points to plural locations along the radius outside of the inner radius. Further, Ou-Yang teaches in paragraphs [0016] and [0018] that hot gas or IR lamps may

be directed onto several areas of the substrate; such would necessarily include locations at an area between the inner radius and outer radius because the area between the inner radius and outer radius encompasses the entire disk substrate surface. It is additionally noted that the Ou-Yang reference is directed to the creation of a heat *gradient* along the radius of disk substrate, which results in the gradually increasing temperature rise of the liquid layer between r_i and r_o as claimed.

Ou-Yang discloses use of a substrate. Ou-Yang lacks a teaching of a plurality of layers deposited on the substrate and that the liquid layer is one of a transparent spacer layer or transparent cover layer. The Examiner takes Official notice that it is well known that optical disks such as DVDs, CDs, and Blu-Rays, which are taught to be useful with Ou-Yang's process (paragraph [0014]) include a plurality of layers on the substrate surface, and that spin coating processes are known to be useful for the application of transparent spacer layers or transparent cover layers on optical disks. It would have been obvious for one having ordinary skill in the art to have used the process of Ou-Yang for the application of a transparent spacer layer or transparent cover layer, in combination with a plurality of layers on the substrate, with the expectation of successful results since it is well known that spin coating techniques for coating on optical disks, such as Ou-Yang, are useful for the application of spacer or cover layers.

As to claim 3, Ou-Yang teaches use of IR radiation in paragraphs [0017] through [0019].

As to claim 4, Ou-Yang teaches that it is known to effect a thermal gradient in the manufacture of an optical disk by use of a heated or cooled chuck in its background section (paragraphs [0011] to [0013]).

As to claim 5, Ou-Yang teaches use of a directed flow of heated gas in paragraphs [0016] and [0018]-[0019].

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ou-Yang.

Ou-Yang lacks a teaching that the radial temperature profile has a shape substantially resembling the radial thickness profile resulting when δT_{ro} and δT_n would be zero (i.e., when no heat is used). It is the Examiner's position that it would have been obvious to one having ordinary skill in the art to have used a radial temperature profile that has a shape similar to the radial thickness profile when no heat is used because Ou-Yang teaches that a higher temperature at the outer periphery results in reduced thickness at the outer periphery (as compared to when no heat is used), therefore one would similarly conclude that the amount of heat needed at any point along the radius would be relative to the thickness at that point along the radius when no heat is used, such that a uniform thickness is formed.

As to claim 8, Ou-Yang lacks a teaching of first partially curing the liquid and then fully curing the liquid. However, it would have been obvious for one having ordinary skill in the art to have separated the curing process into two separate steps, instead of a single step, with the

expectation of successful and equivalent results. In general, the separation of one step into two is not a patentable limitation unless new and unexpected results are achieved.

8. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ou-Yang as applied to claim 1 above, and further in view of JP 2001-307391 A.

As to claim 6, Ou-Yang lacks a teaching of using a mask in the outer peripheral zone of the substrate to prevent exposure of the liquid layer in this zone from UV radiation. JP '391 discloses that it is known to use a mask to shield UV light in the outer peripheral zone of a coated optical disk in order to prevent curing in this area to prevent formation of the lifting of resin at the outer peripheral portion of the disk (see abstract). As to claim 7, it would have further been obvious to have rotated the substrate at a high frequency to remove the unexposed portion of the liquid at the outer periphery of the substrate since this is the portion that is formed having unacceptable results.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kirsten C Jolley/
Primary Examiner, Art Unit 1792

kcj